

CLAIMS

I claim:

1. A paper web cleaning apparatus of the type comprising a first paper buffing roll and a second paper buffing roll in closely spaced parallel relation to the first paper buffing roll, the first paper buffing roll and the second paper buffing roll mounted to rotate towards each other, each buffing roll associated with a hood connected to a vacuum system, and a paper web passes between the first paper buffing roll and the second paper buffing roll so as to be equally spaced from the first paper buffing roll and the second paper buffing roll, wherein the improvement comprises:

the first paper buffing roll comprising a hollow core having a cylindrical surface and mounted for rotation between stub shafts, a material jacket positioned about the hollow core and clamped between opposed end caps to the ends of the hollow core, the jacket material being affixed to the hollow core surface and having a soft outwardly facing surface with a profusion of radially protruding fibers developed thereon.

2. The paper cleaning apparatus of claim 1 wherein the jacket is constructed essentially of wool.

3. The paper cleaning apparatus of claim 1 wherein the hollow core is constructed of aluminum.

4. The paper cleaning apparatus of claim 1 wherein the core surface is rough.

5. A paper web cleaning apparatus of the type comprising a paper buffing roll in closely spaced parallel relation to a paper web, the paper buffing roll mounted for rotation and enclosed within a hood connected to a vacuum system wherein the improvement comprises:

5 the paper buffing roll comprising a hollow core, having a core surface, the hollow core mounted for rotation between stub shafts, a jacket positioned about the hollow core and the jacket material being held but not bonded to the core surface and having a soft outwardly facing surface having a profusion of radially outwardly projecting fibers developed thereon.

10 6. The paper cleaning apparatus of claim 5 wherein the jacket is constructed essentially of wool.

7. The paper cleaning apparatus of claim 5 wherein the hollow core is constructed of aluminum.

15 8. The paper cleaning apparatus of claim 5 wherein the core surface is rough.

9. A method of cleaning a paper web comprising the steps of:
fabricating a core from a thin-walled cylinder approximately 20 to
approximately 60 inches long between bearing supports, and at least
about 3½ inches in diameter;

5 balancing the core about an axis defined by the bearing supports;
placing a woven wool jacket about the core;
shrinking the wool jacket until it tightly engages the core;
developing a soft surface having a profusion of radially extending fibers on the
wool jacket;

10 placing the core within a vacuum hood, drawing a vacuum on the hood and
driving the core to rotate;
placing the soft radially extending fiber surface on the wool jacket in close
touching engagement to a surface of a paper web, which is moving in a
direction opposed to the surface velocity of the roll, at a velocity in
15 excess of 16 fps, to wear the surface into tangential engagement with the
paper surface;

continuing to operate the core within the vacuum hood, while drawing a vacuum
on the hood and driving the core to rotate so as to produce an effective
surface velocity to clean the paper web, moving in excess of 16 fps.

20 10. The method of claim 9 wherein the the affective surface velocity is
approximately 60 to approximately 80 fps.

11. The method of claim 9 further comprising replacing the wool jacket by the steps of:

cutting the wool jacket along an axial direction defined by the thin-walled cylinder;

5 shrinking a new wool jacket until it tightly engages the core;

developing a profusion of soft radially extending fibers on the new wool jacket;

placing the core within a vacuum hood, drawing a vacuum on the hood and

driving the core to rotate;

placing the soft radially extending fiber surface on the wool jacket in close

10 touching engagement to a surface of a paper web, which is moving in a direction opposed to the surface velocity of the roll, to wear the surface into tangential engagement with the paper surface;

continuing to operate the core within the vacuum hood, while drawing a vacuum

on the hood and driving the core to rotate so as to produce an effective

15 surface velocity to clean the paper web.

12. A method of cleaning a surface of a paper web wherein the paper web is moving in a first direction at the velocity of at least 16 feet per second, the method comprising the steps of:

fabricating a core from a hollow cylinder at least 20 inches long between bearing supports, and at least about 3½ inches in diameter;

balancing the core about an axis defined by the bearing supports;

placing a jacket about the core;

shrinking the jacket until it tightly engages the core;

developing a soft surface having a profusion of radially extending fibers on the jacket;

placing the core within a vacuum hood, drawing a vacuum on the hood and driving the core to rotate with a surface velocity of between about 60 and about 80 feet per second in a direction opposite the first direction;

placing the soft radially extending fiber surface on the jacket in close tangential engagement to the surface of the paper web to interact with a boundary layer carried along with the paper web to remove particles from the surface of the paper web.